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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,711	11/26/2003	Paul S. Martin	LUM-03-05-02	7850
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PATENT LAW GROUP LLP 2635 NORTH FIRST STREET SUITE 223 SAN JOSE, CA 95134			EXAMINER CRANSON JR, JAMES W	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/723,711

Applicant(s)

MARTIN ET AL.

Examiner

James W. Cranson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 17, 18, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/26/2003</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, claims 1-10 and 17-22, in the reply filed on 12/02/2005 is acknowledged.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the heat pipes in claims 8 and 21 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 9, 10, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,719,558 TO Cao.

Cao discloses an apparatus comprising a shell, reflector in shell with space between reflector and shell, a light source with the reflector, a heat sink mounted to light source a motor and fan that move air over the heat sink and through the space, LED and an air flow channel.

Regarding claim 1:

An apparatus (1301, figure 14) comprising:

a shell (1303);

a reflector (1411) within shell with space between shell and reflector (figure 14);

one light emitting diode ( 1409) within reflector ;

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a heat sink ( 1405) disposed in shell (figure 14), LED mounted to heat sink (figure14)  
a motor (1413) and a fan (1407) in flow communication with space, fan moving air over  
heat sink (figure 14) and through the space .

Regarding claim 2, according to claim 1:

Cao discloses and illustrates in figure 14 that fan is configured to move air over heat  
sink before moving air through the space.

Regarding claim 3, according to claim 1: wherein shell has at least one air inlet aperture,  
the fan drawing air through the air inlet aperture.

It is inherent that an air inlet aperture exist so that the fan has a source of air.

Regarding claim 6, according to claim 1:

Regarding claim 9, according to claim 1:

Cao discloses and illustrates in figure 14 that fan and motor are within the shell.

Regarding claim 10, according to claim 1:

Cao discloses and illustrates in figure 14 that the device further comprises a hollow neck  
coupled to the shell and a base coupled to hollow neck, wherein fan and motor in base.

Regarding claim 17:

An apparatus (1301,figure 14) comprising:

a light emitting diode ( 1409);

an optical reflector (1411) that controls the direction of light emitted from the light  
emitting diode (1409) (figures 14 and 15);

a heat sink, LED (1409)mounted on heat sink (figure14) ( column 9, lines 28-33);

a fan (1407) for moving air over the heat sink (figures 14 and 15); and

an air flow channel through which the fan moves air, the air flow channel follows the general outline of reflector ( air flow channel is the spacing between reflector 1411 and shell 1303).

Regarding claim 18, according to claim 17:

Cao discloses and illustrates in figure 14 that the air flow channel is at least partially defined by the optical reflector (figures 14 and 15).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,227,686 to Takahashi et al in view of USPN 6,635,99 to Belliveau.

Takahashi discloses an apparatus comprising a shell, reflector in shell with space between reflector and shell, a light source with the reflector, a heat sink mounted to light source a motor

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and fan that move air over the heat sink and through the space. Takahashi does not have a light emitting diode as a light source and does not have cooling fins. Belliveau teaches the use of both light emitting diodes (figure 16, 189) and cooling fins (column 5, lines 25-32) in a device and method for controlling light source temperature. It would have been obvious to one of ordinary skill in the art at the time of invention to provide the apparatus of Takahashi with a light emitting diode as the light source and cooling fins for additional cooling as taught by Belliveau. The reasons for using a light emitting diode as the light source are that less power is needed to operate and long term reliability.

Regarding claim 1:

An apparatus (figures 1-3) comprising:

a shell (7);

a reflector (2) within shell with space between shell and reflector (figures 1-3);

one light emitting diode (1 replaced by light source of Belliveau) within reflector ;

a heat sink (3) disposed in the shell (figures 1-3), LED mounted to heat sink (figures 1-3)

a motor (17) and a fan (6) in flow communication with the space, the fan moving air over heat sink (figures 1-3) and through the space.

Regarding claim 3, according to claim 1:

Takahashi as modified above for claim 1 discloses an air inlet aperture (10) in shell (7)

Regarding claim 6, according to claim 1:

Takahashi as modified above for claim 1 discloses that shell (7) and reflector (2) define at least one air inlet aperture (10) and shell (7) has at least one exhaust aperture (6a).

Claims 4 and 5, according to claim 3, are rejected under 35 U.S.103(a)

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as being unpatentable over US 6,719,558 to Cao in view of US 4,630,182 to Moroi.

Regarding claims 4 and 5, wherein shell and reflector define an air exhaust aperture, wherein air is expelled after moving over heat sink and wherein shell further has at least one air exhaust aperture. Cao does not have that shell and reflector define an air exhaust aperture, wherein air is expelled after moving over heat sink and wherein shell further has at least one air exhaust aperture. Moroi in an illumination system that uses a fan (20), heat sink (18) and reflector (2) teaches that shell and reflector define an air exhaust aperture, wherein air is expelled after moving over heat sink and wherein shell further has at least one air exhaust aperture (columns 3 and 4, lines 15 – 26). It would have been obvious to one of ordinary skill in the art at the time of invention to provide Cao with additional air exhaust apertures as taught by Moroi. The reason as taught by Moroi is to not only cool the light source, but also to cool the reflector.

Claims 8 , 21, according to claims 1 and 17 respectively, are rejected under 35 U.S.103(a) as being unpatentable over US 6,719,558 to Cao in view of US 6,954,270 to Ostler.

Cao does not disclose using fins as part of a heat sink. Ostler in a lighting device that also uses LEDs and an optical reflector teaches the use of fins as part of a heat sink. It would have been obvious to one of ordinary skill in the art at the time of invention to provide the heat sink of Cao with Fins as taught by Ostler. The reason for using cooling fins as taught by Ostler is that “finned or comb-shaped wing increase the surface area” which improves heat dissipation.

Claim 22 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,719,558



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to Cao.

Regarding claim 22, according to claim 17, further comprising a hollow support element that is coupled to the optical reflector and heat sink, wherein the hollow support element defines a portion of the air flow channel. It is obvious to one of ordinary skill in the art that the hollow support element of Cao, 1303, which is part of the air flow channel, would be coupled to the enclosed optical reflector and heat sink to provide support.

*Allowable Subject Matter*

Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 19, according to claim 18, adds an exterior shell in which reflector is partially disposed, wherein air flow channel is further defined by exterior shell. The combination of limitations in claim 19, along with limitations of claims 17 and 18 is not found or taught in the art of record. Claim 20 depends from claim 19 and would be allowable for the same reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Conclusion*


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are US 4,321,659 to Wheeler, US 6,676,283 to Ozawa and US 2,933,596 to Tolbert..

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are USPN 6,676,283 to Ozawa et al., USPN 4,321,659 to Wheeler and USPN 2,933,596 to Tolbert.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James W. Cranson whose telephone number is 571-272-2368. The examiner can normally be reached on Mon-Fri 8:30A.M.- 5:00P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandy O'Shea can be reached on 571-272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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ALAN CARIASO  
PRIMARY EXAMINER